

W. Point. Jan? 28th. 1820

My dear friend

I rec'd your kind letter yesterday, and am much indebted to you for it. I have been prevented from writing to you, or Dr Poorey for some time, by the alarming sickness of my little girl. She was attacked suddenly in a most singular manner. She at first complained for two nights that her pillow hurt her head. We then perceived a swelling on one side of her head, and the ear on the other side appeared red, ~~and~~ as if frost bitten. The swelling rapidly increased and in an hour had covered her forehead, and one eye so that she could not see with it. Her hands, feet, knees, back ~~she~~ successively swelled, causing intense pain. The swellings flew in this way from one place to another for several days, and then diminished, leaving her flesh covered with large purple spots as if she had been violently bruised. We, at one time, had little hope of her recovery. Three surgeons who saw her were unable to tell what ~~was~~ the matter with her, and thought her situation very alarming. There was however a sudden change for the better about 8 or 10 days since, and she has since gradually improved, although still occasionally troubled with slight swellings in her joints. If you, or Dr T. ever heard of a similar case and can tell me the name and nature of the disease, you will oblige me.

& doing so. The anxiety and fatigue which I suffered during this sickness made one
 ill myself, and I was unable to be present at the Examination except for a portion
 of the time, I have now recovered and as the Examination is finished I
 hope to have a little leisure for our favorite pursuits. I am very glad
 to get Ehrenberg's list of our West Point organisms, although I am unable to
 tell to which forms all the names belong,^{of it}. The *Amphysiscus rotula* is easily
 recognised and I annex a drawing, which I made yesterday by means of cam. lucide
 Amphysiscus rotula new genus from
 Ehrenberg's list, & my highest combination, I have added $\frac{5}{100}$ of a millimeter as
 seen by same power. The expanded ends are irregularly lobed
 or notched and excessively thin at the edge, I have examined
 these bodies in every possible position; which the use of the compresor
 and a drop of water easily enabled me to do. I can form no
 idea of their real nature, I must look out for them in a recent state. The comparison
 to "a thread spool" is very appropriate. I have much doubt whether the siliceous
 spiculae which Ehrenberg refers to *Spongia*, are derived from sponges at all, for in
 first place I have never seen them sponges in our bays, and I have seen bodies which
 I believe identically attached like the well known siliceous infusoria to small stems of
 algae | thus  I shall look out for them again next spring.

I see that Ehrenberg gives the name of *Gomphonema paradoxum* to one of the bodies, think
 there are several species of this genus in the great earth, but as the *G. paradoxum* of Agardh
 is a marin species I should doubt whether it occurs at W. P. This genus is usually
 classed with Algae; but I have seen the frustules moving freely a ^{reupy} most common form is this, these frustules
 Gomphonema are usually attached to a long flexible filament, and these are often united as in
 the small fig (a),
 The species of *Navicula* except *N. viridis* I cannot determine, neither can
 I tell what forms are referred to, by the names *Cocconeema* and *Eunotia*,
 I hope you will send your translation to Silliman, and I will try to
 follow it up as soon as possible by an article accompanied by accurate figures of the more
 remarkable forms, I am only troubled with the vast number of forms, I must I believe select the
 more remarkable ones, some are real beauties, I give on the next page a sketch of a

rare and elegant form from Kronckes pond. The large figure A, is copied exactly from a drawing made with care by cambric. The small figure B drawn by the eye from a double specimen moderately may. This species is entirely ^{different from} anything I have ever seen before and from its size and the distinction of its markings is very remarkable. I think I shall ask Allman to have some copper plate engravings made to accompany my article on Infusoria, for I cannot make good drawings upon stone, The drawings being outlines merely would not be difficult to engrave and should not cost much.

I have done but little at botany this winter, for many reasons; I hope however to work a little at it before long. I lately tried a method of examining the ashes of wood &c which promises some good results. Spread a thin layer of Canada Balsam on a slip of glass and then while moderately fluid, touch it lightly to the white ashes produced by ~~the~~ cinder of any wood burning slowly, where not disturbed by too strong a draught. An exceedingly thin layer of ashes is retained by the balsam, (the rest being easily blown away) and in this layer the particles of ashes have the form and nearly the same position that they had, as left by combustion. In examining the ashes of oak and hickory by this method I was surprised to find great numbers of polygonal bodies, arranged in lines parallel to the fibre of the wood, I at first thought them to be crystals, but now suspect that they may result from earthy matter deposited in the cells of the medullary rays, the polygonal form of which, they retain. Whatever their origin their existence is interesting and may lead to some important consequences. They may for example be found to have peculiar forms in diff. species - may be present in ashes of lignite, coal fossil wood &c. I annex the drawing of some of these forms as seen in hickory, and oak.

from hickory ashes

from hickory ashes

from oak ashes

103 or more

I am working away at the marine Algae ^{which} I picked up at Stonington last summer, and occasionally succeed in identifying some of them - a number however still remain undetermined. I feel the want of books on Algae very much. Can you furnish any of your correspondents obtain specimens of the following species (most of which are American) viz. *Phora viridis*, *Ceramium subrum* & *virginicum* (N.Y.) *Ceram. thunbergii*, *Anadyomene stellata*, (Gulf of Mexico) *Daria pedicellata* (N.Y.) *Sphaerococcus multifaribus* & *angustissimus* N.Y. - *S. Torreyi*. N.Y. Only the last is in Dr. T.'s herb.

I hope that you and the Dr will take a trip up here in the spring, & I wish to see you much, can you send me a drawing, made by your new microscope, of some familiar object to enable me to judge of its powers.

J.W.B.

Dr. Asa Gray
corner of Prince & McDougal St

New York

I hope you are getting on rapidly with the Flora, and that you will soon publish another part. As Dr Torrey will read this, it will be unnecessary for me to address him in person. Give to his family my kind regards - and believe me, his and your sincere friend

J.W. Bailey

P.S. Is it possible to get hold of an article by Meyer (in Nova Acta nat. curios. Tom XIV 2^{part}, p 769) that gives some new genera of algae, the figures of which I wish to see.